

RECEIVED  
CENTRAL FAX CENTER  
OCT 24 2006

REMARKS

STATUS OF THE APPLICATION

The instant application was filed on December 11, 2003 and included claims 1-22. In response to a restriction requirement, claims 10-12 were withdrawn from consideration. In the most recent Office Action, claims 1-9 and 13-22 were rejected. In view of the amendments to the claims and the discussion presented herein below, Applicants submits remaining claims 1-9 and 13-22 are patentable over the cited prior art and the instant application is in condition for allowance. An early notification of such allowance is therefore earnestly solicited.

THE OFFICE ACTION

The Office has provisionally rejected claims 1, 2, and 13-22 on the grounds of nonstatutory obviousness-type double patenting over claim 6 of co-pending U.S. Patent Application serial no. 10/733,702.

Further, the Office has rejected claims 1 and 6-9 on the grounds of nonstatutory obviousness-type double patenting over claim 29 of U.S. Patent no. 6,830,725.

Also, the Office has rejected claims 1-2, 4-5, 13-15 and 17-22 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,613,362 ('362) to Welter, et al.

The Office has also rejected claims 1-3, and 6-9 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,765,954 ('954) to Das, et al.

The Office additionally has rejected claims 1-2, and 6-9 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 2,228,781 ('781) to Sauerwald.

Further still, the Office has rejected claims 1, 13 and 16 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,068,938 ('938) to Kato, et al.

Finally, the Office has rejected claims 1 and 6-9 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,830,725 ('725) to Fetcenko, et al.

### **DISCUSSION**

#### **THE OBVIOUSNESS-TYPE DOUBLE PATENTING REJECTIONS**

The Office has provisionally rejected claims 1, 2, and 13-22 on the grounds of nonstatutory obviousness-type double patenting over claim 6 of co-pending U.S. Patent Application serial no. 10/733,702. Further, the Office has rejected claims 1 and 6-9 on the grounds of nonstatutory obviousness-type double patenting over claim 29 of U.S. Patent no. 6,830,725.

Attached hereto is a terminal disclaimer for U.S. Patent Application serial no. 10/733,702. Claim 1 has been amended and no longer includes any embodiments that are obvious in view of claim 29 of U.S. Patent no. 6,830,725. Thus applicants request the withdrawal of all obviousness-type double patenting rejections.

#### **THE REJECTIONS UNDER 35 U.S.C. 102(b)**

The Office has rejected claims 1-2, 4-5, 13-15 and 17-22 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,613,362 ('362) to Welter, et al.

The Office has rejected claims 1-3, and 6-9 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,765,954 ('954) to Das, et al.

The Office has rejected claims 1-2, and 6-9 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 2,228,781 ('781) to Sauerwald.

The Office has rejected claims 1, 13 and 16 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,068,938 ('938) to Kato, et al.

Regarding the rejection over '362 to Welter, et al, the reference teaches hydrogen storage materials having catalytic particulate embedded within and "homogeneously distributed over the surface of the granulate particles." Thus, the '362 reference teaches two embodiments of previous claim 1, i.e. catalytic particles distributed throughout the bulk of the hydrogen storage alloy particles and catalytic particles distributed on the surface of the hydrogen storage alloy particles. However, the '362 reference does not teach the invention presently amended claim 1. As amended, claim 1 requires that the hydrogen storage alloy particles have a continuous or semi-continuous layer of catalytic material on the surface thereof. While the Office contends that the phrase "homogeneously distributed over the surface of the granulate particles" means a continuous or semi-continuous layer, this is not correct. The '362 reference merely discusses a homogeneous distribution of particles. Homogeneous does not mean continuous (or semi-continuous) and as long as the as long as the particles are about the same distance from each other this homogeneous factor is met, without regard to the distribution density of the particles. Thus one particle per  $\text{cm}^2$  can be as homogeneous as 1000 particles per  $\text{cm}^2$  as long as the distribution in each is even. Homogeneously distributed merely means evenly distributed not forming a continuous or semi-continuous layer. Continuous means: uninterrupted in time, sequence, substance, or extent. Clearly the uninterrupted extent is the proper

definition for use in the present claims. The '362 reference clearly describes particles that are not continuous or even semi-continuous, but are clearly discontinuous (i.e. as defined: consisting of distinct or unconnected elements). Therefore as presently amended claim 1 and its dependent claims are not anticipated nor obvious over the '362 reference and withdrawal of this rejection is requested.

Turning next to the rejection over '954 to Das, et al., the reference teaches intermetallic phases disbursed in a rapidly solidified magnesium material. The magnesium alloy is a mechanical alloy and no description is given anywhere within the reference that the alloy has any hydrogen storage properties. Not all magnesium alloys will necessarily be hydrogen storage material. There is also no description that the intermetallic particulate dispersed within the magnesium alloy will act as a hydrogen desorption catalyst. Finally, the reference does not teach limitation of amended claim 1 which requires that the hydrogen storage alloy particles have a continuous or semi-continuous layer of catalytic material on the surface thereof. Therefore, the '954 reference does not teach or suggest the material of claim 1 as presently amended. Withdrawal of this rejection is requested.

Next, with regard to the rejection over '781 to Sauerwald, the reference teaches the distribution of zirconium particles within a magnesium ingot, which is an intermediate product. The final product is a Mg-Zr alloy with no dispersed zirconium particles once the ingot is annealed at 600 °C. Once again, no description is given anywhere within the reference that the Mg ingot has any hydrogen storage properties and there is no description that the zirconium particulate dispersed within the magnesium will act as a

hydrogen desorption catalyst. More importantly, the reference does not teach limitation of amended claim 1 which requires that the hydrogen storage alloy has a continuous or semi-continuous layer of catalytic material on the surface thereof. Thus, the '781 reference does not teach or suggest the material of claim 1 as presently amended. Withdrawal of this rejection is requested.

Finally, with regard to the rejection over '938 to Kato, et al., the reference teaches the plating of magnesium structural pieces with Zn. Once again, no description is given anywhere within the reference that the magnesium alloy structural member has any hydrogen storage properties and there is no description that the zinc coating on the magnesium alloy structural member will act as a hydrogen desorption catalyst. There is no teaching or suggestion of placing a continuous or semi-continuous layer of hydrogen desorption catalyst onto the surface of magnesium or a magnesium based hydrogen storage material. There is not suggestion that zinc is a hydrogen desorption catalyst. Further, the Office has further suggested that the '938 reference teaches an equivalent to about 100 Angstroms. This is completely incorrect. The '938 reference teaches an extreme lower limit on the zinc coating of about 0.2 micron in figures 2a and 2b, but the reference also teaches that their invention is actually a zinc layer that is 0.6 microns or more thick. The Office suggests that 0.2 microns is "about 100 Angstroms". This is not correct. In fact 0.2 microns is exactly 2000 Angstroms, which by no stretch of the imagination is anywhere near 100 Angstroms, and is in fact a factor of 20 different. This is the lowest limit of the reference, and the reference prefers to use 0.6 micron (6000

Angstroms) or more. Clearly this reference does not teach or suggest the presently claimed invention and withdrawal of this rejection is requested.

#### THE REJECTION UNDER 35 U.S.C. 102(e)

Finally, the Office has rejected claims 1 and 6-9 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,830,725 ('725) to Fetcenko, et al.

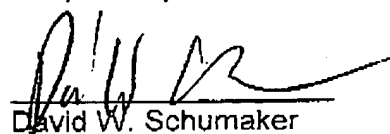
With regard to the to the rejection over '725 to Fetcenko, et al., the reference teaches the distribution of metal particles in an oxide layer on the surface of a hydrogen storage alloy. The reference does not teach the limitation of amended claim 1 which requires that the hydrogen storage alloy has a continuous or semi-continuous layer of catalytic material on the surface thereof. Thus, the '725 reference does not teach or suggest the material of claim 1 as presently amended. Withdrawal of this rejection is requested.

#### CONCLUSION

Claims 1-9 and 13-22 remain at issue. In view of the amendments to claims 1 and 6, the cancellation of claim 10-12, and the discussion above, applicants submit that the present application is now in condition for allowance and earnestly request the re-examination and timely notice of allowance thereof.

Should the Examiner have any comments or suggestions which would place the instant application in better condition for allowance, he is earnestly requested to contact the undersigned.

Respectfully submitted,



David W. Schumaker

Reg. No 35,017

Date: October 24, 2006  
Energy Conversion Devices, Inc  
2956 Waterview  
Rochester Hills, MI 48309

Tel. (248) 299-6047  
Fax. (248) 844-2273  
e-mail: [schumaker@ovonic.com](mailto:schumaker@ovonic.com)